

We are particularly interested in the possible pathophysiologic role of TNF- α in hyperplastic inflammatory diseases such as psoriasis, because we have recently observed numerous dermal dendritic cells which are positive by immunohistochemical staining in active, untreated psoriatic lesions [7].

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REFERENCES

1. Pillai S, Bikle DD, Eessalu TE, Aggarwal BB, Elias PM: Binding and biological effects of tumor necrosis factor alpha on cultured human neonatal foreskin keratinocytes. *J Clin Invest* 83:816-821, 1989
2. Nickoloff BJ, Riser BL, Mitra RS, Dixit VM, Varani J: Inhibitory effect of gamma interferon on cultured human keratinocyte thrombospon-

din production, distribution, and biologic activities. *J Invest Dermatol* 91:213-218, 1988

3. Barker JNWN, Sarma V, Mitra RS, Dixit VM, Nickoloff BJ: Marked synergism between tumor necrosis factor- α and interferon- γ in regulation of keratinocyte-derived adhesion molecules and chemotactic factors. *J Clin Invest* 85:605-608, 1990
4. Davison P, Liu S, Karasek M: Limitations in the use of ^3H -thymidine incorporation into DNA as an indicator of epidermal keratinocyte proliferation in vitro. *Cell Tissue Kinet* 12:605-614, 1979
5. Palombella VJ, Yarnashiro DJ, Maxfield FR, Decken SJ, Vilcek J: Tumor necrosis factor increases the number of epidermal growth factor receptors on human fibroblasts. *J Biol Chem* 262:1950-1954, 1987
6. Piguet PF, Grau GE, Vassalli P: Subcutaneous perfusion of tumor necrosis factor induces local proliferation of fibroblasts, capillaries and epidermal cells, or massive tissue necrosis. *Am J Pathol* 136:103-110, 1990
7. Nickoloff BJ, Barker J, Griffiths CEM, Elder JT, Kunkel S, Dixit V: Molecular and cellular localization of IL-8 and its inducer-TNF in psoriasis (abst). *J Invest Dermatol* (in Press)

EDITOR'S COMMENTS

I am grateful to Dr. Nickoloff for providing the data on which he based the statement that TNF-alpha does not inhibit human keratinocyte proliferation, as requested by Dr. Symington. Since receipt of these papers, a paper by Detmar and Orfanos [1] has addressed in detail the effects of TNF-alpha on keratinocyte proliferation. The evidence in this paper clearly supports the contention that TNF-alpha inhibits keratinocyte proliferation, as also described by Symington [2] and Detmar et al [3].

In the paper by Detmar, 100 U/ml of TNF-alpha provided maximal inhibition of proliferation as judged by both cell number and thymidine uptake. The preliminary data summarized above by Nickoloff seem to indicate that at 100 U/ml of TNF-alpha there was a decrease in keratinocyte number. I read the data, as explained to show that 2.4×10^5 cells increased to 3.4×10^5 over two days in the control, but only to 2.6×10^5 with 100 U/ml TNF-alpha. In fact, compared to the starting point, the inhibition seems impressive.

It is evident that keratinocytes near confluence are not the best

system to study inhibition of proliferation. In studies using keratinocytes well before confluence, TNF-alpha has produced significant inhibition of proliferation.

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REFERENCES

1. Detmar M, Orfanos CE: Tumor necrosis factor-alpha inhibits cell proliferation and induces class II antigens and cell adhesion molecules in cultured normal human keratinocytes in vitro. *Arch Dermatol Res* 282:238-245, 1990
2. Symington FW: Lymphotoxin, tumor necrosis factor, and gamma interferon are cytostatic for normal human keratinocytes. *J Invest Dermatol* 92:798-805, 1989
3. Detmar M, Lessing U, Stadler R, Orfanos CE: Effects of recombinant human tumor necrosis factor-alpha on normal and transformed human keratinocytes in vitro. *J Invest Dermatol* 92:419A, 1989